

A tent support framework with the ability for quick assembling and folding

FIELD OF THE INVENTION

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The present invention relates to a tent support framework with the ability for quick assembling and folding, and particularly to a tent support framework comprising a set of an upper and a lower covers. The upper and lower covers can be joined together or taken apart by elastic force to
10 move the plurality of sets of supporting arm of the framework to proceed in quick assembling and folding. The present invention is applicable to use for various tents.

BACKGROUND OF THE INVENTION

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The tent was invented and used for a long time. It has the characteristic of easy assembly and suits for grazing, marching and camping, etc. The tent makes nomadic life easier, military behavior more mobile, and mountaineering more convenient. The demand for tents is
20 increasing because the leisure activity becomes more and more important nowadays.

No matter which of grazing, marching, and camping, the tents for use in various situations must be supported up by strong tent supporting
25 framework. In order to provide a strong framework with the ability for easy assembling and folding, the conventional structure of tent generally uses a plurality of metal supporting rods as the tent support framework and takes a plurality of fixing elements for combination.

30 However, for the tent support framework in conventional structure, all component elements must be kept well. If some supporting rods or even one or two fixing elements are lost, the whole function of the tent supporting frameworks would be awfully affected. Moreover, it would spend much time to combine the component parts of the tent support
35 framework into a tent in the conventional structure, so the conventional structure of tent support framework is very inconvenient.

In view of the above flows, the present invention provides a tent

support frame according to the inventor's years experience and development.

SUMMARY OF THE INVENTION

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The primary object of the present invention is to provide a tent support framework of which upper cover and lower cover can be joined together or taken apart by elastic force and to move the plural sets of supporting arm of the framework for proceeding in quick assembling and folding is applicable to use for various tents.

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In order to achieve the object, a tent support framework installed between the inner tent and the outer tent with the ability for quick assembling and folding includes: a set of upper and lower covers which can be joined together or taken apart, a plurality of movable arms, and a plurality of sets of supporting arm. The upper cover provided with holding parts, the lower cover with elastic holding elements, the upper and the lower covers being able to mutual join together or separated by the holding parts and the elastic holding elements. One end of each the movable arm being pivotally joined with the lower cover, the other end being free. Each of the plurality of sets of supporting arm being pivotally joined with the upper cover and the free end, respectively, whereby the inner tent and the outer tent being able to be supported up by joining the elastic holding element of the lower cover with the holding part of the upper cover; the upper cover and the lower cover being able to be separated by taking the elastic holding element and the holding part apart, and thus both the plurality of sets of supporting arm and the plurality of movable arms being able to be folded, so the preset invention being able to be quickly assembled and folded.

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There is a preferred embodiment stated below for allowing the present invention to be understood clearly and deeply.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig.1 is a perspective view of the preferred embodiment of the present invention.

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Fig.1a is an enlarged view of part a in Fig.1.

Fig.2 is a schematic view of the combination of the upper and lower covers, the movable arm, and the supporting arm set in the present invention embodiment.

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Fig.3 is a perspective view of the upper cover in the embodiment of the present invention.

Fig.4 is a schematic view of the combination of the set of supporting arm in the embodiment of the present of the present invention.

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Fig.5 is a schematic view of the upper and the lower covers joined together in the embodiment of present invention.

Fig.6 is a schematic view of the upper and the lower covers separated in the embodiment of present invention.

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Fig.7 is a schematic view of the whole framework folded in the embodiment of present invention.

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DETAILED DESCRIPTION OF THE INVENTION

Fig.1 is the perspective view of the embodiment of the tent support framework with the ability for quick assembling and folding according to the present invention. The tent support framework is installed between the inner tent and the outer tent. The inner tent is attached beneath the tent support framework. The outer tent is laid on the tent support framework after the tent support framework was opened. Referring to Figs.2-4, the present invention includes: a set of upper and lower covers 10, 20 which can be mutually joined together or taken apart, a plurality of movable arms 40 and a plurality of sets of supporting arm 50.

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The upper cover 10 has a through hole 11 at its upper part, a plurality of first connecting parts 12 at its outside and a first hollow tube 13 at its inside; and there are a plurality of through holes 131 on the wall of the first hollow tube 13. The lower cover 20 has a plurality of second connecting parts 21 at its outside and a second hollow tube 22 upward at its inside; and the second hollow tube 22 extends upwards into the first

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hollow tube 13. On the wall of the second hollow tube 22, there are elastic holding elements 221 corresponding to the plurality of through holes 131.

5 In the second hollow tube 22 there is an elastic body 30 contacted against the elastic holding elements 221, so that the elastic holding elements 221 can go into the holes 131. There is a rope 23 installed above the second hollow tube 22. The rope 23 passes upward through the first through hole 11. On the end of the rope 23 there is an upper grasping part
10 231 and there is a lower grasping part 24 connected beneath the second hollow tube 22. One end of each movable arm 40 joins with one connecting part 21 of the lower cover 20, and the other end of each movable arm 40 is free.

15 Each supporting arm set 50 consists of a first supporting arm 51, a joint 52, a second supporting arm 53, a third supporting arm 54, and a elastic element 55. On the first supporting arm 51 there is a movable element 511 used to join movably with the free end of the movable arm 40. There is an elastic plate 512 installed on the end, near the upper cover
20 10, of the first supporting arm 51. The first supporting arm 51 can be joined to the first connecting part 12 of the upper cover 10 by the elastic plate 512.

 The other end of the first supporting arm 51 joins with one end of
25 the joint 52. There is a holding element 531 installed on each second supporting arm 53. One end 532 of the second supporting arm 53 joins with the other end of the joint 52. The other end 533 of the second supporting arm 53 joins with one end of the third supporting arm 54. The other end of the third supporting arm 54 is connected to the ground. The
30 elastic element 55 passes through and connects with the first, the second and the third supporting arms 51, 53, 54, and the joint 52.

 There is a hooked part 513 installed near the end close to the elastic plate 512 and of each first supporting arm 51. When the tent support
35 framework in supporting situation, the second hollow tube 22 of the lower cover 20 goes into the first hollow tube 13 of the upper cover 10, the elastic body 30 contacts against the elastic holding element 221, the elastic holding element 221 is forced to go into the through hole 131, and

the elastic ring 60 joins with the hooked part 513. At this very moment, one end of the first supporting arm 51 and the movable arm 40 join movably with the first and the second connecting parts 12, 22 of the upper and the lower covers 10, 20, respectively. The free end of the movable arm 40 joins to the movable element 511. The first supporting arm, the joint, and the second and the third supporting arms 51, 52, 53, 54 join each other orderly. Because the plurality of supporting arm sets 50 can share the burden and support each other, the tent support framework possesses supporting force enough to open the tent, as shown in Fig.1.

Referring to Figs.4-6, when the tent support framework in folding situation, the third supporting arm 54 is upwards bent in an inverse direction and is held by the holding element 531 of the second supporting arm 53. The second supporting arm 53 is then bent toward the joint 52. One end of the first supporting arm 51 and the movable arm 40 still join movably with the connecting parts 12, 21 of the upper and the lower covers 10, 20, respectively. The lower grasping part 24 is then pulled downwards to remove the elastic holding element 221 from the through hole 131 and take the upper cover 10 and the lower cover 20 apart. At this very moment, the free end joined with the movable element 511 slides due to the movement of the movable element 511, so that the whole supporting arm set 50 can be affected and folded by the elastic element 55. The elastic ring 60 can bind the first supporting arm 51 to keep the supporting arm set 50 in folded situation. As stated above, the tent support framework can be assembled and folded quickly and conveniently, as shown in Fig.7.

Therefore, the present invention has the following advantages:

1. The assembling of the tent support framework according to the present invention is achieved by joining and the holding among the elastic body, the elastic holding element and the through holes; and folding is achieved by loosening the elements. The structure and the principle of the present invention are easy and simple, so that it can be assembled and folded quickly and efficiently.
2. The elastic ring of the present invention can provide a binding force for folding the tent easily.

3. The elastic element of the present invention can pass through and connect with the supporting arm sets, so the supporting arm sets can be conveniently folded and held, and stored in a smaller storing space.

5 4. All the component elements of the present invention are connected with each other, so there is no need for additional fixing element, and the whole the framework can be easily stored.

10 To sum up, the present invention indeed can achieve its expected object to provide a tent support framework that its upper and lower covers can be mutually joined together and taken apart by the elastic force and the whole framework can then be moved, so it can be quickly assembled and folded. The present invention is applicable to use for various tents and has the utilization value in industry.

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